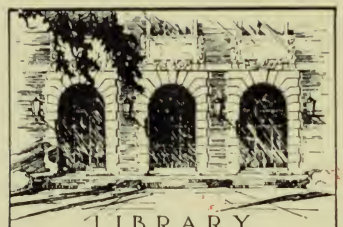

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"To Have and To Hold"

The Family and Population Changes in Utah

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"To Have and To Hold"

The Family and Population Changes in Utah

Is Population Increase 'Natural'?

Popular discussions are often condemned for their use of ambiguous words and phrases. Nevertheless, such phraseology provides significant clues to the assumptions of everyday thinking. For instance, it is commonplace to speak of the "growth" of population, as if increasing numbers were "natural" and to be expected. Consistent with this attitude is the tendency to characterize lack of increase as "stagnation," and decreasing numbers as "decadence." That this is more than mere metaphor is borne out by corresponding emotional reactions.

Although the idea that population grows is questionable theory, it is not without a superficial basis in fact. Our national population always has increased. Why should it not continue to do so? Contrary experiences of Western European countries either have been unknown to us, or have been dismissed as abnormal and irrelevant.

During the 1930's the *rate* of population increase fell off sharply for the nation as a whole. In fact, six states and numerous cities and towns experienced actual decrease in numbers. To the few persons who bothered to look backward, it was evident that the rate of gain in national population had been declining ever since the 1850's. Thus were planted seeds of doubt that population increase is natural. In 1938 the National Resources Committee implemented such doubts by publishing a detailed analysis of American population trends.[1] The experts were quoted as predicting a stationary or even a declining population within a generation. Today we seem to have forgotten both the doubts and the predictions. Population trends during World War II have restored "faith" in population increase. It appears now that the 1950 census will show national gains for the decade of the forties at roughly *double the rate* of gain during the thirties. Furthermore, the Western states boast of the larger share of this increase. To them this is evidence of progress toward the goal of a new era of industrial and business expansion.

Were the experts wrong in the 1930's? Has all occasion for doubt disappeared? Will population go on increasing as many people feel it "ought to"? On the whole, the answer must be "no," and this for two reasons: one concerns the food supply; the other, the family. A stable or decreasing population is predicted for the near future: in the first instance because our food supply is said to be at or near its maximum limit of expansion; in the second, because reproduction in the average family is tending to fall below the level necessary to maintain population.

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[1] "The Problems of a Changing Population," U. S. Government Printing Office, Washington, D. C., 1938.

The immediate question is whether these predictions apply to Utah. The problem of food resources is outside the scope of the analysis which follows. However, its omission should not be construed as disparagement of claims that numbers are or soon will be excessive with respect to food supply. This is a matter to be decided by economists, ecologists, and technologists. Suffice it to say that we tend to be over-confident that science and human ingenuity can solve any practical problem upon which life depends.

Reproduction and Contraception: Malthus and After

Whatever the experts may conclude concerning the relation between food supply and population, there remains the other question of the family's role in population change. Family behavior involves factors of population change which *can* reduce numbers well below the limit dictated by the factor of food supply. This possibility is a crucial point too often overlooked, particularly by extremists among those who raise the alarm of over-population. The chief reason lies in acceptance of the assumption already noted—that population increase is natural. It is taken for granted that numbers tend to outrun the food supply, that increasing food necessarily means increasing population. Lack of expansion, or actual decrease in food resources is, therefore, held to be the basic factor which stabilizes or reduces population size.

This mode of reasoning is highly persistent and widespread. It is, of course, the classic "principle of population" formulated a century and a half ago by Thomas Malthus. Its essential inadequacy is precisely its interpretation of the role of reproductive behavior in family life. Malthus' views are reasonably consistent with the pattern of family life in the 1790's. Within the next century the family was undergoing radical changes. If Malthus could have observed life in today's urban-industrial society, he doubtless would have modified his law of population. Nevertheless, some of his successors continue to accept his assumptions uncritically, and *to this extent* exaggerate the threat of over-population.

What was Malthus unable to see? Specifically, he did not, or for moral reasons could not, recognize the possibility of systematic contraception. He did recognize and give a major place to limitation of births, but what he termed "preventive checks" to population increase call for, as he put it, a "prudent, moral restraint." Malthus' rational man simply chooses the lesser of two evils. Excessive numbers means operation of the "positive checks," i. e., untimely death due to famine, vice, war, pestilence, etc. Reason informs man that sexual inhibition is less costly in the long run. Hence, celibacy, delayed marriage, and restraint even after marriage are unhappy substitutes for untimely death.

It is a paradox that the present-day "planned parenthood" movement has been sponsored by the Neo-Malthusians. Obviously Malthus advocated the planning of parenthood, but in a strictly negative sense. Today's concept of planned parenthood ideally includes a positive defi-

nition of the role of sex in marriage, a role made possible by elimination of the *fear* of pregnancy. It also, of course, has made *possible* the reduction of births to the point of extinction.

Moral indignation over so-called avoidance of parenthood has led to much misunderstanding of the role of contraception as a factor in family change. It is quite erroneous to think that contraception as such can *cause* change in behavior. It can only *implement* behavior tendencies for which adequate motivation already exists. Hence, invention and diffusion of contraceptive techniques are among the secondary factors in the processes of change affecting family life. Primary factors are those which produce changes in the motivation of family behavior. Contraception was not unknown in Malthus' time. New and more demanding needs called for contraception, and it in turn made possible new patterns of behavior.

The Family and Population Change

The foregoing considerations bring our problem into focus. As Utah moves into her second century, the expressed goal and immediate trend is industrial and business expansion. For this reason, if for no other, a sociologically-minded student of population could hazard a guess that Utah's numbers will tend toward stability or decline, unless supplemented by migration from other areas. However, the probability that Utah will attract appreciably more migrants than will leave the state, decreases as industrialization increases in the areas from which they are likely to come.

Birth, death, and migration are the primary factors or processes of population change. But they also are events in human life which become significant in terms of family situations. Behavior of family members in such situations tends to be standardized by institutional patterns. For early Utah these were an expression of the traditional ideal of family solidarity. Consequently, one would expect that changes in Utah's birth, death, and migration rates would be occasioned by deviations from this ideal.

Measuring the Having and Holding Powers of the Utah Family

It will be helpful at this point to make use of the familiar expression "to have and to hold." If we think now of having and holding powers of the family, we can demonstrate specific linkages between population changes and family changes. In the first place, the traditional ideal is to have many children, many children's children, and a generous host of kinsmen in the family line. There is no place for limitation of births in the current sense of planned parenthood. If births are prevented, it is as a Malthusian concession to biological survival in the sense previously noted. Thus, birth trends should make possible the measuring of the family's having power.

In the second place, traditional family solidarity also means to hold the group of relatives together in an intimate bond of kinship cooperation. As more than occasional expression of sentiments, this

is possible only to those who are relatively close to each other in residence. Leaving home to settle elsewhere is a direct challenge to the ideal. It follows that appropriate migration data should make possible a measurement of the family's holding power in this local sense.

What about death and family values? Its significance becomes most evident in terms of changes in length of life. To increase the number of persons surviving to given ages is apt to disturb the status quo and necessitate redefinition of family situations. Its effect is, essentially, to increase the efficacy of having and holding powers beyond their normal functioning at a given time.

Finally, the phrase "to have and to hold" comes from marriage ceremonial and expresses the ideal permanency of that relationship. One marries for life, or even for eternity. It implies subordination of personal considerations if they conflict with maintenance of the marriage. Divorce, therefore, is inconceivable on the ground of incompatibility; hence, divorce trends may well be considered to provide an additional measure of the strength of the traditional ideal.

In brief, then, our aim is to assess the having and holding powers of the Utah family as they are manifested in a century of population change; to find any evidence of change in family values and motivation reflected in birth, death, migration, and divorce trends.

Lack of Registration Data and the Problem of Their Reconstruction

Difficulties immediately arise because compilations of the kinds of data needed are either lacking or limited to recent years. A reliable count of births, deaths, and in- and out-movements is dependent upon a continuous registration record of these events as they occur. There is *no* record of migration in this sense for any of our forty-eight states taken separately. Death and birth records, sufficiently complete to be reported by the Federal Census Bureau, date from 1910 and 1917 respectively, for Utah. So recent are reliable records that th Bureau's Registration Area did not include all states until the 1930's. Thus it becomes a major task to estimate births, deaths, and migration for all, or the greater part of the century of Utah's history. Census data on population composition are a chief aid in making such estimates.

We are fortunate in having the Federal Census of Utah's population every ten years beginning in 1850. Of all the information published, perhaps the most useful is that on the age-sex composition of population.[2] As we shall see, shifts in the distribution of population by age and sex are highly symptomatic of past, present, and future changes in family life. Furthermore, when age-sex data are expressed graphically one can visualize the population processes of birth, death, and migration in terms of their effects. Given a ten-year interval between censuses, the population at one census nec-

[2] Fairly extensive data of this type are available for Utah: for the Total and the White and Non-White groups since 1850; the Native and Foreign-Born White since 1870, and Urban and Farm classes since 1910 and 1920, respectively.

essarily will be ten years older, ten years later at the next census. Thus we can calculate what to *expect* and can compare this with what we actually *find* as population matures.

The Trend of Fertility

Considering first the case of births, it is evident that children under 10 years of age at a given census are the survivors of births during the preceding intercensal decade. If, then, the under-10 age class varies in proportion to total population, this should constitute a clue to the birth rate or fertility[3] trend.

Actually, we find that in 1860 more than one in every three persons was a child under 10 years of age, and that the number had declined to about 1 in 5 by 1940.[4] The United States trend shows a similar decline of almost one-half, but at every point well below Utah figures. Because this downward trend parallels increasing urbanization of population, urban-rural differences and trends are especially significant.

Urban population is defined by the census as persons living in incorporated towns and cities with 2,500 or more inhabitants. By 1940, Utah's population was well over half urban (55.5%) and only 1% *less* so than for the United States as a whole. This represents, in both cases, roughly a *threefold increase* during the preceding century. Rural population is classed by the census as Farm and Nonfarm, the latter being persons resident in all types of communities under 2,500 in size. Better than one-fourth (27.3%) of Utah's population, as against one-fifth (20.5%) of the national total, fell into the Rural-Nonfarm class in 1940. The remaining Rural-Farm group constituted more than a fifth (22.9%) of the nation's population, but only about one-sixth (17.1%) of Utah's. Although data are limited to the period since 1920, the Rural-Farm segment decreased sharply for both Utah and the nation. The Rural-Nonfarm class increased markedly in Utah, but remained practically stable for the United States as a whole.

Returning to the proportion of children under 10, we find that the state and the nation, in 1940, had 4% and 7% more children on the farm than in the city. Moreover, the decrease in the farm population since 1920 was accompanied by a sharp drop in the proportion of children under 10 within the farm group itself. The urban trend was likewise downward, but not as rapid. In the case of the rural-nonfarm class, Utah figures are close to those for the farm; the United States nonfarm totals show a greater deviation in the direction of the urban pattern.

Summing up, the data on children under 10 suggest a long-run downward trend of fertility affecting farm and village as well as city groups. Decline was accentuated in the 1920's and 1930's, particularly for those groups with the highest proportions of children. Nevertheless, it clearly began at least as far back as 1860, when population was as yet relatively little urbanized. It is most unlikely that a Mal-

[3] The term "fertility" is used in population studies to refer to *actual* reproduction rates. *Potential*, or biologically possible reproduction is termed "fecundity."

[4] See Table 1. All Tables are in the Appendix.

thusian interpretation in terms of increasing pressure of numbers on the food-supply could explain this trend adequately. Other changes in population composition could be involved, as well as the possibility of changes in the motivation of reproduction. To explore the matter further, the first consideration is whether the age-defined potential parent group in the population has remained constant. Perhaps the proportion of potential parents was greater when the proportion of children was greater, and vice versa. If so, this would mean that the estimated rate of decline in fertility is not as great as seemed indicated. However, as a matter of fact, something of the opposite condition seems to have existed. Roughly speaking, we find the lowest proportion of potential parents when there is the highest proportion of children, and vice versa.

If we examine the changes in the 20 to 39 year age group for Utah, we find that in proportion to total population, it was lowest in 1870 and lower in 1860 and 1880 than at any time since.[5] When compared with the United States, Utah proves to have had at all times a relatively smaller potential-parent group as well as a relatively larger quota of children. Moreover, for both Utah and the nation the trend is clearly toward more persons who can be parents as well as toward fewer children.

If the average number of children born per family remained constant, the increasing proportion of possible-parents should mean an increasing proportion of children. Since the opposite has occurred, we must conclude that the trend in the ratio of children to total population *understates* the rate of decline in fertility.

Urban-rural contrasts are instructive on this same point. Locally and nationally the farm population, as of 1940, included fewer persons of parent age than the city. But this is only half the picture. The city not only had some 7% more potential parents, but at the same time, as already noted, it had about 7% fewer children than the farm. In short, the difference in fertility between farm and city is considerably greater than is suggested by the 7% difference in the ratio of children to total population.

It is evident then that the ratio of children to parents, rather than to total population, is a more adequate measure of fertility. It is conventional to express it as the ratio of children under 5 per 1,000 women, 15 to 44 years of age. This narrows down the base of the ratio to the actual possible source of births in a population. The number of males in parent ages becomes significant primarily in relation to marriage, as will be explained presently.

Comparing this trend of children in relation to mothers[6] with that of children in relation to total population, there is revealed a similar but sharper decline. For Utah, a peak of at least 1,056 children per 1,000 women was *more than cut in half* to 459 in 1940. The rate of decline was just as rapid as that for the nation as a whole, although the latter started and ended markedly lower. In the case of urban-rural contrasts and trends there is a similar accentuation of differences and decline.

[5] See Table 2.
[6] See Table 3.

Having determined the ratio of children to the total potential mothers, another question arises. Could there have been a larger proportion of these women married in an earlier decade when the ratio was higher? There is no direct evidence before 1890, but it is quite possible that the practice of plural marriage resulted in a higher proportion of all women actually bearing children. Considering the high proportion of children in the 1860's, '70's, and '80's, this could mean that *relatively more* women were bearing children then, than were bearing them later, and not necessarily that the average woman bore more children than her daughters would later.

Despite this possibility, there are indications of an *upward* trend in marriage from 1890 to 1940. Census data on the marital condition of the population 15 years of age and over reveal this increase for both sexes.[7] During these fifty years the proportion of married females increased about 4% locally and nationally. However, in the case of males, the increase was almost 13% for Utah and nearly 8% for the nation. This striking difference was in good part[8] due to a changing sex ratio. Decrease in the excess of males over females increased the ratio of married to total males. Of course, this decrease can continue to the point where females will outnumber males. Such actually has been the trend in urban population. It is primarily due to migration of youthful females to cities in greater numbers than males. Details cannot be considered here other than to note that the resulting surplus of females in the marrying ages was about 10% for Utah's cities in 1940. It had not yet reduced the proportion of females who marry, but it is likely to in the near future, if sex-selective migration cityward continues.

What can we conclude? Married women as a group may have been somewhat larger in proportion to the children of the earliest decades. Therefore, the peak ratios of children to all women of child-bearing age may exaggerate their fertility when compared with the women and children of later decades. On the other hand, the trend during Utah's second half-century was clearly not one of decreasing marriage producing decreasing fertility. Rather, Utah's population was becoming more married and decreasingly fertile simultaneously.

Fertility and Mortality: Population Replacement

There is another standpoint from which this ratio of children to women of child-bearing age could be said to *underestimate* rather than exaggerate fertility in the early decades. The chances of survival or life-expectancy have increased. More births were necessary then, than now, to rear the same number of children to maturity. The ratio of survivors to births increased at the same time that the ratio of the survivors to reproductive age women decreased. Therefore, fertility must have been greater in the 1850's, '60's, and '70's than was indicated. If so, this would offset, in some degree, the opposite effect of there being a possibly greater proportion of married women in the reproductive age group.

[7] See Table 4.

[8] Increasing life-expectancy and parallel increases in the proportion of women widowed probably account for less increase in the proportion of women in the married state.

How great was this change in life-expectancy? This is most easily determined from life-tables based on mortality data. But, a count of Utah deaths adequate for this purpose does not exist before 1910. The only recourse is to use life-tables based on the mortality of other states available for the early decades, and assume that they at least approximate Utah conditions. The procedure is to estimate the approximate number of births and deaths necessary to yield the number of survivors counted in the under-10 age class at each census. In the 1850's, '60's, and '70's it appears that about 1 out of every 4 children born during the decade died before the census was taken. In the 1880's mortality risks probably had begun to decrease; and by the 1930's the ratio had dropped to 1 out of every 20.

From life-tables we can estimate also the number of children (0-4) per 1,000 women (15-44) necessary to offset deaths and maintain a stable population. This number decreases as life-expectancy increases. When compared with the ratios of children to women previously cited, the differences are a measure of fertility *in relation to* mortality—a measure which is of much greater predictive value than a simple birth rate. Their trend answers a question which should throw additional light on changes in the having and holding power of the Utah family. Does the tendency to bear children decrease in relation to the chances of rearing children to maturity? Or, put otherwise, do parents deliberately limit births in relation to an ideal number of children reared to maturity? If so, the evidence suggests that this ideal itself, or the number of its adherents, has been changing continuously downward parallel with the decline in fertility.

The replacement level[9] or the number of children necessary to maintain population, fell from about 490 per 1,000 women, in the early decades, to approximately 360 in the 1930's. Utah's fertility ratio consistently has been above this level, exceeding it 100% or more in the first three decades. Since the 1880's, however, both the replacement level and the actual fertility ratio have decreased, but fertility *has declined much more rapidly*. At least from the '80's, then, any such ideal of family size itself has been undergoing downward redefinition by an increasing number of parents. Recent studies[10] of representative Utah youth reveal attitudes definitely in favor of relatively small families. About four children are considered ideal, and contraception is approved by the majority as the means to such planned parenthood.

The fact remains that Utah always has had a significantly higher fertility than the United States average. During the 1930's the national trend was falling *below* the rate necessary to maintain population. For 1940 this deficiency appears to have been about 5%. In the same year Utah was approaching, but still more than 25% *above*, the replacement level. Again the urban-rural data are particularly significant. The national urban group was already falling below replace-

[9] See Table 3.

[10] Harold T. Christensen, "Factors in the Size and Sex Composition of Families: a Survey of Student Opinion," *Proceedings of the Utah Academy of Sciences, Arts and Letters*, Vol. XXIII (1945-1946), pp. 107-113. See also his "Mormon Fertility: a Survey of Student Opinion," *American Journal of Sociology*, Vol. LIII (1947-1948), pp. 270-275.

ment before the 1930's. By 1940 it was *more than 25% deficient.* Utah's urban population had an above-level margin of less than 10% in 1940, but this was little more than one-third the margin thirty years before. Locally, from 1920 to 1940, the rural-nonfarm and farm groups fell from about 100% to 50% above replacement; nationally, the farm group declined from approximately 50% to 35% and the nonfarm from 35% to 12%.

Population Aging and Its Consequences for Family Life

There are further implications of changing life-expectancy for the family that need to be noted. Increased life-expectancy has come about mainly through reduction of infant mortality and the disease hazards of childhood. Once safely beyond the childhood years, the chances of living to old age have not changed in anything like the same degree. The change consists essentially in a greater proportion of individuals not dying in childhood, and therefore living to old age, barring accidents. It is this increasing quota of children who did not die that has been the major factor in expanding the proportion of population in successively older age brackets.

In the group 60 years of age and over[11], Utah has experienced almost a fourfold increase, from 2.2% in 1850 to 8.5% in 1940. This has been consistently lower than for the United States as a whole, which had reached 10.6% by 1940. However, Utah will approach the latter due to the added effects of migration. Specifically, movement of the foreign-born into Utah became almost negligible after 1910. As a result, without continuing replacements, the *average age* of the group as a whole has been increasing rapidly. In 1940, approximately half of Utah's foreign-born were over 55 years of age, whereas in 1870 this figure was less than 35 years of age. This aging effect of decreasing in-migration has been reinforced somewhat by a similar, though less rapidly declining influx of the United States natives born outside of Utah.

What is the significance of this aging of population for family life? Two major points are relevant. In the first place, increasing life-expectancy means more older members of families, necessitating readjustments of institutional patterns to meet new situations. Particularly in urban life it has created numerous difficulties in intergeneration relationships which still are far from being solved. These include problems of housing, care of the infirm, authority, recreation, child rearing, and others. Traditional solutions are either lacking or have become unworkable under new conditions. Most acutely, it often means increasing economic responsibilities for relatively young parents during their potentially reproductive years. In short, we have yet to find an adequate status for "old age," socially as well as biologically defined—a status which will be satisfying to old and young alike and not inimical to family life.

In the second place, changing life-expectancy has radically altered the age-pattern of death. From 1850 to 1900 attempts were made, though admittedly incomplete, to enumerate deaths by age and sex

[11] See Table 5.

for the calendar year preceding each census. Assuming that the incompleteness is approximately uniform at all ages, the data[12] provide a striking picture of the proportional distribution of all deaths by age. They indicate that almost 2 out of every 3 deaths in the 1860's and '70's were of children under 5 years of age. This is reasonably consistent with the facts of high child mortality and a high proportion of young children in the population. It is a striking contrast to find, in 1940, that 2 out of every 3 deaths occurred to persons over 50 years of age. Deaths to children under 5 had decreased to about 1 in every 10. This is equally consistent with decreased child mortality, decreased numbers of children, and the great increase of older persons in the population. Given this trend, the immediate question is how it affects the *meaning* of death in family life. Death, with few exceptions, is an emotional shock to intimates of the deceased. But death in old age is, in a sense, both expected and acceptable. Death among children under 5 is the more difficult to accept the less frequently it occurs. With this in mind, it would be interesting to explore two questions. Has decreasing child mortality been a factor in increasing our valuation of the child as a unique personality to be treated as an end in himself? And, if so, has this new concept of childhood equality and freedom encouraged reduction of family size? We can do no more here than suggest the possibilities.

Migration: The Difficulties of Making Estimates

Turning now to the factor of migration, what has been its trend, and what are its implications for family life? Its effects upon the aging of population have already been noted. Here, if we are to measure family holding power, the relevant question is the extent to which migration has been joint or separate movement of family members. The answer should provide some indication of the strength of the kinship bond expressed in terms of local solidarity. The chief basis of inference must be the age pattern of migration, and particularly, if possible, that of Utah natives moving out.

Since a registration record of migration is lacking, estimates must be based on census data. In 1940, for the first time, the census secured information providing a reasonably adequate measure of both in- and out-movements. This was for the period 1935 to 1940. For Utah there was a count of 30,826 surviving in-migrants and 43,218 surviving out-migrants. The difference between the two meant a *net-migration loss* to the state of 12,392 persons still alive in 1940. There is no direct information on their ages. Before 1940, census data on "nativity" make possible rough approximations of these total movements in and out, but again without age classifications. However, given "age" data, net-migration estimates are possible in terms of the changes in age groups ten years older, ten years later. Combining these two methods is the best possible means for solving the problem at hand.

Nativity estimates of migration are made from census counts of two classes of persons: those born out of Utah, but living in the state; and those born in Utah, but living outside the state. We know that these persons moved *sometime* since birth, but this could mean

[12] See Table 7.

one year or a hundred. The amount of change in these groups between censuses is the clue to migration during a ten year interval. However, it must be corrected for deaths which will produce an *expected* decrease each decade. Furthermore, persons born in Utah but living out, can return to the state. Each such case will cancel the count of another Utah-born person moving out. The same applies to the class of persons by definition born out, but living in the state. In short, though by definition one-way movements, each class involves an unknown amount of counter-movement and is an incomplete count to this extent.

Migration: The Total In- and Out-Movements

Recognizing these limitations, we can make certain broad and minimal statements of trend based on nativity data.[13] Briefly, the in-movement per decade had reached at least 35,000 in the 1880's, decreased by half in the next decade, risen to nearly 50,000 in the 1900's, and then declined rapidly to less than 5,000 in the '30's. For the 1850's, '60's, and '70's this was chiefly an influx of the foreign-born. Their in-movement decreased markedly after 1890, save for a brief recovery period at the turn of the century. U. S. natives born out of Utah were moving into the state during all decades, but in notable numbers in the 1880's and from 1900-1920. In short, migration into Utah, except for the drop in the 1890's, appears to have been on the increase until about 1910, falling off rapidly since then.

But what of the counter-movement, out-migration? The only indications are the decennial changes in the population born in Utah but living in other states. Apparently few persons left Utah before the 1870's. Thereafter, the outflow of the Utah-born continued increasingly to a peak of over 50,000 for the decade of the 1920's. The number fell off slightly during the 1930's. As a recent study[14] shows, both the in- and out-movements for Utah were at a lower rate than for most of the other Western states.

Our chief interest is in the age-pattern of these movements.[15] But this is practically impossible to get at where it is most to be desired. We know the ages of the foreign-born whites, but we do not know the ages of the native whites classified into those born-in and born-out of Utah. Nevertheless, tentative approximations are possible. The non-white population is omitted in the following analysis for the sake of simplification. It is too small to modify significantly the conclusions reached for the native and foreign-born whites.

It needs to be reemphasized that age estimates of migration are *net* figures. They are determined by comparing the expected number of survivors in a given age group with the actual count of population in that age group ten years later when it is ten years older. Estimates of deaths give us the number of expected survivors. If we find *more* persons than expected, this indicates a *net gain* by migration. If the *actual* is less than the *expected*, this means a *net loss*.

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[13] See Table 8.

[14] J. R. Mahoney, "Migration as a Factor in Economic Welfare—Utah and Western States," *Utah Economic and Business Review*, Vol. 1, 1942, pp. 3-8.

[15] See Table 9, and note at beginning of Appendix.

Migration: The Age-Pattern

We have seen that, for the first three decades of Utah's history, population movement was largely into the state, consisting primarily of the foreign-born. The age-patterns for total, native white, and foreign-born white classes all show net gains at practically every age. There is little reason to question that this in-movement was in good part migration of families.

In the 1880's a similar age-pattern continues, with the exception that now there is a disproportionate net increase of youthful males, for both the native and foreign-born whites. There is little doubt that this is an adequate reflection of the age-pattern of foreign-born in-migrants; but is it of the native class? The first large group of natives born out of the state came in during the '80's, but their in-movement was countered by less than half as many Utah-born leaving the state. These Utah-born were young, since they must have been born since 1850. Consequently, this smaller out-migrating group of youthful persons must have been offset by an equally young, but larger in-migrating group. Slight net losses of youthful, native white females suggests that the Utah-born moving out included some young women as well as men. Summing up, it appears that in the 1880's individuals as well as families were migrating both into and out of the state.

Age estimates of migration for the 1890's reveal the first net losses at any age to the total population. These are found in moderate numbers for native white males, particularly in the 20 to 40 year age brackets. The foreign-born whites experienced gains at all ages and for both sexes, but not in sufficient numbers to offset the losses in the native group. We know that only a small number of U. S. natives born out of Utah moved in during the '90's, whereas the first large group of the Utah-born moved out. It seems evident, then, that the 1890's continued the pattern begun in the '80's of considerable individual out-migration. Slight losses of females in their twenties suggests that the out-migrants were primarily males. This does not deny that family migration also was involved.

The 1900's, like the 1880's, witnessed disproportionate net gains in youthful males, but on a much larger scale and primarily in the foreign-born white category. Age estimates for the native whites are similar, but smaller, and again reveal slight losses of youthful females. But this does not mean that the outflow of the Utah-born, especially young males, had ceased. The 1900's brought the largest influx of U. S. natives born out of the state. Their in-movement was countered by a smaller but still large number of the Utah-born moving out. Again, as in the 1880's, the same explanation seems warranted to account for the concentrated though moderate net gain in youthful males, with parallel slight losses of females. Equally young groups must have migrated both ways, though the in-movement must have been larger and have included fewer females. The implication of continued and increasing individual migration logically follows.

From 1910 to 1940 there was a rising overall net-migration loss to Utah's population. It reached a peak of at least 30,000 in the decade of the 1930's. The pattern in age estimates is one of decrease at practically all ages, with growing concentration of losses in youthful classes. Nativity estimates show that foreign-born and native in-movements were reduced sharply. The out-movement must have been largely of those born in Utah, losses having reached more than 50,000 in the 1920's. Departures of individuals were undoubtedly greater than those of families. During the 1930's the net loss to both sexes in the 'teens and twenties was over 20,000 in number. This was at least two-thirds of the total estimated net-migration loss, and constituted from 12% to 15% of these particular age classes in the population.

The Significance of Rural and Urban Migration Trends

It will be helpful to restate our aims and assumptions at this point, before noting rural and urban migration trends. It has been assumed first, that migration of individuals as contrasted with families implies a weakening of kinship bonds; second, that individual migration is implied when estimated gains or losses are disproportionate, particularly in youth groups. On this basis the claim is made that family holding power manifest in local solidarity has been decreasing steadily in Utah since the 1880's.

Previously, we arrived at the conclusion that the having power of Utah's families, measured in terms of fertility, likewise has been decreasing for at least as long a period of time. Further, that increasing life-expectancy has reinforced this downward trend in at least two ways. First, by decreasing the number of births necessary to rear an ideal number of children to maturity. Second, by increasing the number of family members who survive beyond the reproductive ages but lack adequate status, economic and otherwise. Both declining fertility and increasingly inadequate old-age status are most prominent in the urban setting. Since, therefore, the urbanward trend of population is a factor in the changes we have analyzed, the urban and rural patterns of migration have particular relevance.

Specifically, one-third of the total farm population out-migrated during the 1920's, and a fourth of the remainder had followed by 1940. For both decades this included roughly half of farm youth of both sexes, with a preponderance of females. The rural-nonfarm population gained slightly during the '20's and lost moderately during the '30's. The small gains of the first decade and the larger losses of the second were both concentrated on youths in their 'teens and twenties.

The urban group experienced overall gains for the same two decades. The total number was moderately large in the 1920's, but negligible in the 1930's. In-migrants were young, with some excess of females. However, the urban influx was but a fraction of the total out-movement from the rural-farm and nonfarm groups. It is not clear whether rural persons move directly out of the state, or whether they move to the city and city persons leave[16] in turn.

[16] See the Geddes' study cited in note 18.

This brings us to the crucial point. The most fertile segments of population have been most affected by migration, and this has been as much, if not more, a matter of individual than of family migration. With everything pointing to increased urbanization of Utah's population, it hardly needs to be said that further decline in fertility to or even below the population replacement level "can happen here."

World War II and the Trend of Fertility

There remain for consideration the population trends of the 1940's. Do they negate all that has been said concerning the decreasing having and holding powers of the Utah family?

Utah's birth rate moved upward sharply in 1942 to a peak in '43, dropped back almost to the 1940 level in 1945, and then rose to a new peak in '46 and '47. It should be added that birth rates had reached all-time lows in the 1930's, and were recovering slightly through 1941. This overall trend parallels that for the United States as a whole, except that Utah's birth rate has been consistently the higher by a generous margin at all times. It is important to note, however, that the 1946 peak was still short of the World War I high points in 1918, '20, and '21. At the same time it is true that the actual annual counts of births, beginning in 1942, exceeded the numbers for all previous years. The rates were lower because the population base was relatively larger in relation to births.

Given a rising birth rate, does this mean a significant reversal of the downward trend of fertility? It does only if it can be shown that the average woman was tending to bear more children than previously. Two types of evidence cast doubt upon this possibility.

In the first place, an increasing marriage rate could account for the increased birth rate. Utah's marriage rate was rising in the late 1930's to an all-time high in 1940. It decreased slightly in 1941, and then fell to unusual lows during the next three years. It increased again in 1945, reached a new high in 1946, and declined again in 1947. The post-war peak in 1946 undoubtedly accounts for much of the '46-'47 rise in births. War postponed births to earlier marriages were doubtless also a factor. The marriage peak centering in 1940 is less obviously related to the rise in births beginning in 1942, although its timing points to another significant factor.

We must not overlook the effects of the rising income level of the early 1940's as compared with the depression years of the '30's. Births to existing marriages, and new marriages and their births, doubtless were delayed in many instances by depression conditions. They were caught up later in the boom days of the early 1940's. On the other hand, marriages and births which would have occurred later, except for the war situation, were similarly speeded up. Thus the 1940's saw their *normal* quota of marriages plus a *caught-up* quota on the one hand and a *speeded-up* quota on the other. Add to these a quota of *war marriages* which would probably never have occurred otherwise. Such concentration in a shorter period of time calls in question any rising trend toward larger completed families.

Another significant type of evidence with similar implications is the trend of births in terms of their ordinal positions. It was first and second births that increased most sharply, third births somewhat less, and fourth births only moderately. If fertility were rising one would expect to find a greater increase in third, fourth, fifth, and higher orders of births. Even for the three decades since 1917, when this type of data first becomes available, there has been a relatively continuous downward trend in births of higher orders than the fourth. Utah's trend parallels that of the United States as a whole in this respect. Evidently large families are diminishing in number—more rapidly the greater the number of children above four.

It can be concluded, then, that it is unlikely that the downward trend of fertility has been reversed in the 1940's, except perhaps to offset the depression years' deficit. Indeed, the speeded-up marriages and births of the war years will doubtless be followed by a slump in both. This already seems to be indicated by 1948 trends.

The Trend of Divorce

Because World War II brought unparalleled divorce rates, this is the appropriate point to consider briefly their long run, as well as recent, trend in Utah. Registration data on marriage and divorce are available since 1887, but with several gaps, particularly for the period of World War I, and the mid-1930's.

A divorce rate means little unless expressed in relation to marriages. The ratio of divorces to marriages in the same year is the easiest mode of expression. Nevertheless, it is quite misleading insofar as it gives the impression that divorces in a given year necessarily ended marriages contracted in the same year. A better method is to determine the ratio of divorces in a given year to an annual average of marriages during the preceding ten years. However, the gaps in Utah data practically rule out this possibility. Keeping in mind, then, the limitations of a year by year comparison of divorces and marriages, what sort of long run trend is revealed?

Utah, with few exceptions, has had a divorce rate[17] as high or higher than the U. S. average ever since the late 1880's. Utah marriages, on the average, then, can claim no unusual degree of permanence. In the early 1900's divorces averaged about 1 to every 10 marriages. By the mid-1920's the ratio had risen to 1 for every 6. It held this level until 1942, at which time it rose to almost 1 for every 4. From then it continued upward to high points in 1945 and 1946, when the ratio was in excess of 1 divorce to every 3 marriages. Nineteen forty-seven found the ratio decreasing slightly.

It is clear that the having and holding powers of the Utah family have changed considerably as far as the ideal of permanence in marriage is concerned.

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[17] See Table 6.

World War II and the Role of Migration

One other question arises concerning population trends in the 1940's. Has the out-migration of Utah youth continued? Short of waiting for the 1950 census data, certain conclusions are possible now.

The Census Bureau recently estimated Utah's population at 655,000 persons as of July, 1948. This is an increase of approximately 105,000 since the 1940 census, or a gain of a little more than 19%. This was a high rate of increase as compared with many states, but not as high as in the Pacific Coast area. The latter gained very heavily by migration. Utah's increase, however, was in largest part due to the excess of births over deaths.

The seven years in question saw approximately 127,000 births and 37,000 deaths. Thus births exceeded deaths by 90,000, which is 15,000 less than the actual increase in population. This means that by 1948, Utah had a net gain by migration of about 15,000 persons. Undoubtedly the total influx was larger than this, but reliable data are lacking. Moreover, much of the wartime movement, aside from armed-forces personnel, was within the state. Also, many persons must have moved into the state and out again in this interval.[18] In any case, however much greater the in-movement of persons who remained in the state, this number must have been matched by an equal outflow of population. That such out-movement, dominated by youth, has continued, seems highly probable. One thing is certain; selective service alone produced mobility and new experiences for youth on an unprecedented scale. The resulting challenge to the family's holding power in terms of local solidarity is self-evident.

Conclusions

We set out originally from the popular attitude that it is natural for population to increase. We endeavored, then, to show that this viewpoint is more a matter of faith and hope than the result of valid interpretation of the factors at work in population change. Among these factors, food supply limitations are one reason for questioning the probability of continued population increase. Two years ago, the Reynolds Lecturer[19] analyzed the destructive effects of certain land-use practices in Utah. The implication of shrinking food resources and excessive population is clear.

The present discussion has approached the "population problem" from the direction of what some persons choose to call the "family problem." The essential point involved is the adequacy of functioning of the family as the primary social instrument of population maintenance. Contrary to Malthusian assumptions and popular expectations, there is ample evidence that the family, under given conditions, tends to fail in its function of maintaining numbers—and this despite sufficiency of food resources. The immediate question for us, has

[18] Joseph A. Geddes has dealt with wartime migration and an extensive sample of the movements of youth in Utah. "Migration—A Problem of Youth in Utah," *Bulletin* 323, Agricultural Experiment Station, Utah State Agricultural College, Logan, Utah; May 1946.

[19] Walter P. Cottam, "Is Utah Saraha Bound?", *Bulletin of the University of Utah*, Vol. 37, No. 11, Feb. 1947.

been to what extent family life in Utah has been changing in this direction. Utah has experienced less change in the family than much of the rest of the nation. However, if her second century is to be an era of industrial development, the Utah family will accelerate its trend toward the possibility of "too few people" in the sense indicated.

The early Utah family, expressing the ideal of family solidarity, was a potent instrument of population increase. Nevertheless, it is clear that this family's "having and holding powers" have long been undergoing reduction. As evidence we have cited long run, declining fertility, increasing mobility, and rising divorce trends. Taken together, these three factors are among the typical symptoms of family change in the shift from a farming to an urban-industrial pattern of life.

Life becomes highly competitive and impersonal in a social world greatly enlarged in scale. The drive to succeed means increasing wants with a never adequate income. The child ceases to be an economic asset and becomes an item of cost alternative to other, often more effective, means and symbols of success. Opportunity to rise in the success scale frequently means moving to new communities. Family tradition and local solidarity give way to the call of new experiences and occupationally determined social relationships.

In this mobile, competitive, and impersonal world, marriage becomes the primary intimate setting in which people can "be themselves" and find companionship. From marriage they therefore demand mutual compatibility and happiness, because opportunities to find these elsewhere have been greatly curtailed. The upward trend of divorce in large part reflects the increasing emphasis upon this crucial role of modern marriage.

How to stabilize this new family in terms of adequate reproduction and satisfying lives for its members remains in good part unsolved. Today's families must face many problems previously nonexistent. Hence, they resort to more or less impulsive experimentation in working out their life-patterns. Instead of regretting the loss of traditional patterns, a more realistic approach would recognize the necessity of changes to meet new conditions. Above all, it would seek to guide that change as far as possible in directions which will realize values we all can share.

APPENDIX

NOTE: It is expected that the basic Utah data interpreted in the present study, together with the graphs used as slides, will be published separately. Therefore, a minimum of percentage tables not readily available has been included here. The basic age data for Utah have been adjusted to ten-year intervals to offset changes in the census date. Also the "unknown ages" have been distributed proportionately.

The 1930-1940 table of age estimates of migration for the Total, Urban, Rural-Nonfarm and Rural-Farm groups is included as a minimum sample. Each of these four groups has been analyzed for Native-White, Foreign-Born White, and Non-White categories.

Birth and marriage rates for Utah and the United States for the period since World War I have been published recently in a statistical handbook: "Measures of Economic Changes in Utah, 1847-1947," *Utah Economic and Business Review*, Vol. 7, No. 1, December, 1947.

Table 1

CHILDREN 0-9 YEARS OF AGE, AS PERCENT OF ALL AGES, UTAH AND THE UNITED STATES, 1850-1940

(Based on U. S. Census data)

ALL CLASSES

Year	Utah	U. S.	Year	Utah	U. S.
1940	20.9	16.1	1890	29.3	24.3
1930	23.9	19.6	1880	32.5	26.7
1920	26.2	21.7	1870	34.9	26.8
1910	26.7	22.2	1860	38.7	28.7
1900	29.0	23.8	1850	31.2	29.1

	URBAN		RURAL-NONFARM		RURAL-FARM	
Year	Utah	U. S.	Utah	U. S.	Utah	U. S.
1940	18.8	13.5	24.2	18.4	22.8	20.4
1930	21.3	17.2	27.3	21.6	26.2	23.6
1920	22.8	19.0	28.9	22.8	29.7	25.8
1910	23.2	18.8	.....	.....	.....	.....

Table 2

PERSONS 20-39 YEARS OF AGE, AS PERCENT OF ALL AGES, UTAH AND THE UNITED STATES, 1850-1940

(Based on U. S. Census data)

ALL CLASSES

	Total		Male		Female	
Year	Utah	U. S.	Utah	U. S.	Utah	U. S.
1940	30.7	32.2	15.4	15.9	15.3	16.3
1930	29.5	31.8	15.0	15.8	14.5	16.0
1920	30.5	32.4	15.8	16.4	14.7	16.0
1910	32.2	33.3	17.5	17.3	14.7	16.0
1900	28.8	32.1	14.9	16.4	13.9	15.7
1890	30.4	31.7	17.3	16.4	13.1	15.3
1880	26.4	30.9	14.1	15.8	12.3	15.1
1870	25.2	30.3	12.9	15.0	12.3	15.3
1860	27.0	31.0	13.2	16.0	13.8	15.0
1850	31.0	30.6	17.5	15.9	13.5	14.7
URBAN						
1940	32.3	34.5	15.7	16.5	16.6	18.0
1930	31.5	35.0	15.4	17.1	16.1	17.9
1920	32.7	36.1	16.3	18.1	16.4	18.0
1910	34.2	37.4	18.5	19.1	16.7	18.3
RURAL-NONFARM						
1940	30.3	32.0	15.5	16.1	14.8	15.9
1930	29.6	30.4	15.7	15.5	13.9	14.9
1920	32.4	30.9	18.1	16.0	14.1	14.9
RURAL-FARM						
1940	25.8	27.0	14.0	14.3	11.8	12.7
1930	24.4	25.6	13.1	13.2	11.3	12.4
1920	25.6	26.8	13.5	13.5	12.1	13.3

TABLE 3

FERTILITY RATIOS AND REPLACEMENT INDEX, UTAH AND THE UNITED STATES, 1850-1940

(Based on U. S. Census data and life-tables)

Year	Fertility Ratio[1]		Replacement[3] Ratio	Percent above or below replacement level[4]	
	Utah	U. S.		Utah	U. S.
			ALL CLASSES		
1940	459	329	356	28.9	— 7.6
1930	523	391	368	42.1	6.3
1920	621	468	390	59.2	20.0
1910	648	488	380	70.5	28.4
1900	700	518	408	71.6	27.0
1890[2]	796	529	446	78.5	25.8
1880	914	609	451	102.5	35.0
1870	1005	620	492	104.3	26.0
1860	1056	682	486	117.3	40.3
1850	910	672	486	87.2	36.2
			URBAN		
1940	391	257	356	9.8	—27.8
1930	426	315	368	15.8	—14.4
1920	486	381	390	24.6	— 2.3
1910	513	374	380	35.0	— 1.6
			RURAL-NONFARM		
1940	559	400	356	57.0	12.4
1930	652	471	368	77.2	28.0
1920	765	527	390	96.2	35.1
			RURAL-FARM		
1940	554	484	356	55.6	36.0
1930	649	545	368	76.4	48.1
1920	775	612	390	98.7	56.9

[1] Number of children 0-4 per 1000 women 15-44. Children 0-4 *not* corrected for under-enumeration; a 5 percent increase is conventional, though this is somewhat arbitrary.

[2] 1890 figures for children 0-4 have been corrected to offset effects of a change in census definition of age, by increasing numbers to the 0-4 percent of total population averaged for 1880 and 1900. For additional adjustment of Utah data see note in Appendix.

[3] The same ratio in a life-table population, hence the number of children necessary to maintain a stable population assuming continuance of current mortality trends. Based on Massachusetts and U. S. life-tables 1855-1900, Utah life-tables 1910-1940.

[4] Replacement ratios for 1910-1940 are slightly low for determining U. S. replacement index since Utah mortality rates are lower than U. S. average.

Table 4

PERCENT MARRIED OF ALL PERSONS 15 YEARS OF AGE AND OVER, UTAH AND THE UNITED STATES, 1890-1940

(Based on U. S. Census data)

Year	MALES		FEMALES	
	Utah	U. S.	Utah	U. S.
1940	62.9	61.2	64.0	61.0
1930	59.9	60.0	62.8	61.1
1920	59.0	59.2	62.6	60.6
1910	54.1	55.8	61.4	58.9
1900	54.8	54.5	59.3	57.0
1890	50.2	53.9	61.1	56.8

Table 5

PERSONS 60 YEARS OF AGE AND OVER, AS PERCENT OF ALL AGES, UTAH AND THE UNITED STATES, 1850-1940

(Based on U. S. Census data)

ALL CLASSES

Year	Utah	U. S.	Year	Utah	U. S.
1940	8.5	10.5	1890	5.3	6.1
1930	6.9	8.6	1880	5.0	5.6
1920	5.9	7.5	1870	3.9	5.0
1910	5.1	6.8	1860	2.9	4.2
1900	5.6	6.5	1850	2.2	4.1

Year	URBAN		RURAL NONFARM		RURAL-FARM	
	Utah	U. S.	Utah	U. S.	Utah	U. S.
1940	9.3	10.6	7.2	10.7	7.6	10.1
1930	7.6	8.2	6.1	9.6	6.3	8.0
1920	6.6	7.0	5.7	9.0	4.7	7.1
1910	5.3	6.3	.....	.....	.....	.....

Table 6

DIVORCES PER 100 MARRIAGES (IN SAME YEAR), UTAH AND THE UNITED STATES, 1890-1946

Year	Utah	U. S.	Year	Utah	U. S.	Year	Utah	U. S.
1946	35.1	26.8	1932	17.1	16.3	1922	11.5	13.2
1945	37.7	31.0	1931	18.1	17.3			
1944	31.9	27.5	1930	18.0	17.0	1916	13.1	10.6
1943	29.6	22.8	1929	16.1	16.4			
1942	23.6	18.1	1928	17.5	16.6	1906	10.0	8.5
1941	18.7	17.3	1927	17.2	16.0			
1940	18.2	16.5	1926	18.6	15.0	1900	10.1	8.1
1939	17.4	17.9	1925	18.1	14.8			
1938	18.1	18.3	1924	16.1	14.4	1895	9.1	6.8
1937	17.1	17.2	1923	15.2	13.4			
						1890	6.6	6.2

Based on reports of U. S. Census Bureau and Federal Security Agency.

Table 7

PERCENT DISTRIBUTION OF DEATHS BY AGE, UTAH, 1850-1940

Age in Years	PERCENT OF TOTAL				
	1940	1930	1920	1910	1900
Total	100.0	100.0	100.0	100.0	100.0
Under 1	10.4	14.3	18.6	21.4	18.8
1-4	2.5	5.1	7.3	8.3	11.5
5-9	1.5	2.8	3.1	3.7	4.7
10-14	1.5	2.3	2.8	2.7	3.0
15-19	2.4	3.7	3.9	2.9	4.6
20-29	4.6	6.3	10.6	8.7	10.7
30-39	5.5	6.6	11.5	9.0	9.4
40-49	7.9	9.1	8.0	8.4	7.8
50-59	13.0	11.1	8.3	8.4	6.5
60 and over	50.7	38.7	25.9	26.5	23.0
	1890	1880	1870	1860	1850
Total	100.0	100.0	100.0	100.0	100.0
Under 1	21.0	25.6	31.5	34.0	17.2
1-4	18.0	25.4	34.2	28.9	20.5
5-9	8.2	14.5	6.1	4.6	7.9
10-14	6.2	6.6	3.1	1.3	3.4
15-19	4.4	2.3	2.8	2.7	7.5
20-29	8.7	5.0	5.5	10.7	11.7
30-39	6.6	4.9	5.2	6.7	9.2
40-49	5.6	3.2	3.8	2.7	8.4
50-59	4.5	3.8	1.9	5.1	7.1
60 and over	16.8	8.7	5.9	3.3	7.1

Based on U. S. Census "enumerations" 1870-1900; on U. S. Vital Statistics reports 1910-1940, the latter representing 3 year averages centered on census year.

Table 8

ESTIMATED MIGRATION BASED ON DECENNIAL CHANGES IN NATIVITY GROUPS, UTAH, 1850-1940

Decade	OUT-MIGRATION	IN-MIGRATION		
	U.S. Natives Born-In Utah, Living-Out	Born-Out of Utah, Living-In		
		Total	U.S. Natives	Foreign-Born
1930-1940	39,348	2,601	7,455	—4,854
1920-1930	54,319	9,116	8,843	273
1910-1920	36,719	20,914	16,059	4,855
1900-1910	25,844	49,023	26,251	22,772
1890-1900	21,893	19,599	8,549	11,050
1880-1890	8,778	35,789	19,250	16,539
1870-1880	7,150	23,208	5,223	17,985
1860-1870	3,967	24,217	4,553	19,664
1850-1860		15,482	4,528	10,954

Based on U. S. Census data supplemented by death estimates from life-tables.

Table 9

ESTIMATED DECENNNIAL NET-MIGRATION BY AGE AND SEX FOR UTAH, 1930-1940

(Minus sign denotes net loss; no sign means net gain)

Sex — Age Classes at Beginning and at End of Decade	TOTAL 1930-1940		URBAN 1930-1940		RURAL NONFARM 1930-1940		RURAL-FARM 1930-1940	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total (0+ to 10+)	—35,883	— 7.1	3,127	1.2	—11,674	— 8.7	—27,336	—25.1
Males (0+ to 10+)	—18,606	— 7.2	1,237	0.9	— 6,397	— 9.1	—13,446	—23.1
0- 4 to 10-14	261	0.9	1,031	7.4	— 462	— 4.9	— 308	— 4.1
5- 9 to 15-19	— 1,659	— 5.2	587	4.0	— 1,158	—12.4	— 1,088	—14.1
10-14 to 20-24	— 3,614	—12.1	249	1.8	— 1,066	—13.2	— 2,797	—36.1
15-19 to 25-29	— 3,596	—13.6	235	1.8	— 82	— 1.2	— 3,749	—53.1
20-24 to 30-34	— 2,683	—11.6	— 247	— 2.0	— 285	— 4.8	— 2,151	—42.1
25-29 to 35-39	— 902	— 4.8	52	0.5	— 390	— 7.2	— 564	—17.1
30-34 to 40-44	— 1,093	— 6.2	— 277	— 2.9	— 708	—14.0	— 108	— 3.1
35-39 to 45-49	— 1,427	— 8.5	— 218	— 2.4	— 913	—19.2	— 296	—10.1
40-44 to 50-54	— 1,195	— 7.8	— 329	— 4.0	— 641	—15.6	— 225	— 7.1
45-49 to 55-59	— 1,171	— 8.9	— 234	— 3.2	— 542	—16.3	— 395	—15.1
50-54 to 60-64	— 735	— 6.8	— 150	— 2.5	— 205	— 8.2	— 380	—16.1
55-59 to 65-69	— 307	— 3.8	117	2.7	— 19	— 1.1	— 405	—20.1
60-64 to 70-74	— 292	— 4.4	73	2.0	82	5.8	— 447	—28.1
65+ to 75+	— 193	— 1.7	348	5.6	— 8	— 0.3	— 533	—22.1
Females								
(0+ to 10+)	—17,277	— 6.3	1,890	1.4	— 5,277	— 8.2	—13,890	—27.1
0- 4 to 10-14	— 53	— 0.2	986	7.3	— 507	— 5.6	— 532	— 8.1
5- 9 to 15-19	— 1,399	— 4.6	1,325	9.1	— 1,172	—13.0	— 1,552	—22.1
10-14 to 20-24	— 3,358	—11.4	1,495	10.2	— 1,074	—13.4	— 3,743	—51.1
15-19 to 25-29	— 3,921	—14.9	— 247	— 1.8	— 479	— 7.3	— 3,195	—53.1
20-24 to 30-34	— 2,891	—12.6	— 1,227	— 9.2	— 533	— 9.1	— 1,131	—30.1
25-29 to 35-39	— 1,008	— 5.5	— 375	— 3.5	— 395	— 8.1	— 238	— 8.1
30-34 to 40-44	— 818	— 5.0	— 56	— 0.6	— 525	—12.4	— 237	— 8.1
35-39 to 45-49	— 1,233	— 7.9	— 267	— 3.0	— 516	—13.4	— 450	—16.1
40-44 to 50-54	— 804	— 6.0	— 85	— 1.1	— 247	— 8.1	— 472	—18.1
45-49 to 55-59	— 824	— 7.2	— 195	— 2.9	— 91	— 3.7	— 538	—23.1
50-54 to 60-64	— 588	— 6.2	— 39	— 0.7	39	2.1	— 588	—29.1
55-59 to 65-69	66	0.9	328	7.8	194	13.2	— 456	—31.1
60-64 to 70-74	— 302	— 5.1	23	0.6	114	9.1	— 439	—39.1
65+ to 75+	— 144	— 1.3	260	3.8	— 85	— 3.0	— 319	—20.1

Based on U. S. Census data supplemented by death estimates from life-tables.

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